

**CLAIMS****1. A lithium ion battery comprising:**

5 A housing having a front side and a backside and an anode terminal and a cathode terminal separated therefrom;

10 Positioned within the housing a plurality of bipolar lithium ion cells having a polymer separator there between; the cell electrodes being comprised of a thin film plastic substrate and being electrically connected appropriately to the anode and the cathode cell terminals;

15 wherein the cells are longitudinally placed in the housing parallel to the sides of the housing; and

20 wherein the housing is enclosed by the cathode cell terminal at one end and the anode cell terminal at the opposite end of the housing; and

25 the enclosed housing is capable of receiving an electrolyte placed between the cells and the electrolyte is capable of carrying ions between the anode and the cathode.

2. The battery of claim 1 wherein the housing is in the configuration of a open rectangular sleeve into which the cells fit.

30 3. The battery of claim 1 wherein the one of the terminals has a port for insertion of electrolyte into the battery after assembly of the cells within the housing.

4. The battery of claim 1 wherein one of the terminals has a vent for gas release therefrom.

35 5. The battery of claim 1 wherein the cells are retained within a cell sleeve surrounding the longitudinal length of the cells within the housing.

6. The battery of claim 5 wherein the cell sleeve extends beyond the length of the cells and which extensions are retained in a plurality of metallic clips, one of which is the anode and another is the cathode.

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7. A method of manufacturing a lithium ion battery comprising:

Providing a plurality of bipolar lithium cells with a polymer separator there between;

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Electrically attaching the anodes of the cells to an anode terminal and the cathodes of the cells to a cathode terminal;

Positioning the cells longitudinally within a housing having a front and a backside thereto so as to be parallel to the sides of the housing; and

Assembling the anode cell terminal at one end of the housing and the cathode cell terminal at the opposite end of the housing thereby enclosing the cells within the housing.

8. The method of claim 6 wherein the anodes are ultrasonically welded to the anode cell terminal and the cathodes are ultrasonically welded to the cathode cell terminal.

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9. The method of claim 6 wherein the anode and cathode terminals are crimped to the housing, thereby providing a seal of the cell terminals to the housing.

10. The method of claim 6 further comprising inserting a gas release vent into a port in the one-way valve housing attached to the anode cell terminal.

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11. The method of claim 1 wherein the housing is in the configuration of an open rectangular sleeve prior to positioning the cells therein.